Strategic Initiative 2 – Accelerate Silo 3

Subproject Description

Silo 3, located adjacent to Silos 1&2 on the western periphery of the site, is an unbermed concrete silo that contains 5,088 cubic yards of cold metal oxides, a by-product material generated during Fernald's uranium processing operations. The predominant radionuclide of concern identified within the material is thorium-230, which is produced from the natural decay of uranium-238.

The overall objective of the Silo 3 subproject is to safely retrieve the metal oxides from the concrete silo and package and transport the oxides for off-site disposal.

Execution Strategy

The subproject will use a combination of vacuum and mechanical retrieval systems to retrieve the metal oxides from Silo 3. This material contains several RCRA metals and the Operable Unit 4 Record of Decision established that some RCRA requirements are relevant and appropriate for managing and remediating the waste. However, Silo 3 material is classified as "by-product material," as defined under Section 11e.(2) of the Atomic Energy Act of 1954, which means that it is specifically exempt from regulation as solid waste under RCRA 40 CFR Part 261.4(a)(4).

The Record of Decision was modified to eliminate the requirement for performance-based treatment (immobilization of RCRA metals) of the Silo 3 material. In response to stakeholder concerns regarding the ability to safely handle and transport the fine-grained Silo 3 material, treatment will be performed to the extent practical to address material dispersability and metals mobility. As part of this best management approach, no analytical criteria (e.g., treated waste metals analysis) will be applied to the final waste form to demonstrate the degree of treatment.

The waste will be packaged in approximately 1,900 IP-2 soft-sided containers, each having a capacity of up to 96 cubic feet. The soft-sided containers will be loaded into enclosed trailers (eight soft-sided containers per trailer) and shipped by truck for disposal at the Nevada Test Site. Approximately 240 truck shipments will be required to transport Silo 3 material to the off-site disposal facility.

Following retrieval of the metal oxides from Silo 3, the Silo 3 structure, remediation facilities and associated systems and components will undergo decontamination (i.e., wash and fixative application) and will then be turned over to the Facility D&D subproject for demolition and disposal. Jacobs Engineering has completed the design for the Silos 3 subproject, and Fluor Fernald is performing construction management and will direct the operations, packaging, and shipment activities.

New Strategies to Achieve 2006 Closure

In order to accelerate site closure from 2009 to 2006, the following initiatives were developed for the Silo 3 subproject:

- Eliminate TCLP-based treatment performance standard because the material is 11e.(2) "by-product" material and treatment is not needed for protective waste disposal. Treatment will be performed to the extent practical to address material dispersability and metals mobility as a best management practice
- Dispose of the Silo 3 material at the Nevada Test Site consistent with Fernald's currently successful shipping and disposal program

Current Subproject Status

Subproject Status:

- Subproject is 36% complete
- Construction is underway
- Cost to Complete: $18 million
- Subproject will be complete in October 2004

The Silo 3 subproject is currently 36% complete. The final design is complete and construction is nearing completion. A demonstration was performed on Silo 4 that included reinforcing the silo and then cutting an opening in the wall of the silo to simulate the activities that will be performed on Silo 3 prior to mechanical retrieval. Silo 4 is an empty, unused silo located adjacent to Silo 3 and is the same size, shape, and construction as Silo 3. Following completion of construction, the waste retrieval and loadout systems will be operated. The subproject operations and shutdown are currently on schedule to complete in October 2004.

Key Actions and Responsibilities

The following table lists the key actions needed to accelerate the Silo 3 subproject to meet 2006 site closure. Also included are the responsible organizations, the status of the key action, and the date that the key action is needed. The key actions for all eight strategic initiatives (subprojects) are compiled in Attachment 2.

Key Actions and Responsibilities for Silo 3

Action	Responsibility	Status	Date Needed
Modify Record of Decision to eliminate performance-based treatment of Silo 3 waste	DOE-OH and Fluor Fernald	Complete	—